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Vol. II. No. 20

NOVEMBER 13, 1902

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(THE WHEEL THAT'S TRUE!) "Let another man praise thee"—Proverb xxii, 3.

We this week allow
some people who know
something about

MIDGLEY TUBULAR STEEL WHEELS

to do a...
little talking
...for us

With the advent of the Automobile the demand for many new departures from old lines has been felt, and apart from the motive force, no part is of more importance than the foundation of your machine, "the wheels," for on their reliability may depend your life. Below we enumerate a few instances which show the strength of the "Midgley Wheel" when occasion arises:

Midgley Manufacturing Company.

Gentlemen—I am so thoroughly pleased with your tubular steel wheels that I desire to place an order for two more sets, each \$230, deliver within the next ten days. May I state that the first set you made three years ago are still in service and just as good as new. I have used, as you know, several sets of your wheels on cars from \$60 to 1,900 pounds, and I can only say that they are absolutely satisfactory in every way. They are handsome and durable. I do not know how the wheels could be broken. I have given them the hardest tests. Sincerely,

C. M. TAYLOR.

CHICAGO, April 15, 1902.

The Midgley Manufacturing Company,
Columbus, Ohio.

Gentlemen—I beg to acknowledge receipt of three cones and set of balls by mail, and thank you for your prompt action in the matter. One of my cones had broken off in pieces, about half way around and up so near to where the balls run on the cone that I did not deem it advisable to continue using it. The other cone had scaled off where the balls run for a distance of half way round the cone, leaving a rough groove or surface for the balls to run upon. I also wish to say that I have a magnificent sample which proves the strength of the Midgley wheel, having collided with the curb-

stone, owing to misplacement of the steering apparatus, with four in the vehicle, going at a rapid pace. The force of the collision was such as to throw everybody out of the vehicle and crush one spoke in past the center of the wheel; but wonderful to state, no joints were broken nor was the wheel knocked out of true in the least, leaving the wheel as capable as ever for doing business, but of course hurting its appearance. A wooden wheel would probably have been demolished, requiring the assistance of a horse and wagon to get the machine to a repair shop, but, as it was, nothing of this kind was necessary and it is ready for another collision without notice. Yours truly,

GEO. GLOVER.

You had better get the best wheels when ordering your 1903 Automobile. Say "We Want Midgley," and you will get them.

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Motor Age

WITH WHICH IS INCORPORATED
CYCLE AGE

VOL. II. No. 20.

CHICAGO, NOVEMBER 13, 1902.

\$2.00 PER YEAR

SIR THOMAS LIPTON IN AN OLDSMOBILE

Famous for his attempts to capture America's cup in an international yacht race, Sir Thomas Lipton does not confine his interest in sports and pastimes to the expensive habit of building Shamrocks, but has become an enthusiastic automobilist. It is gratifying to the American trade to know that in indulging his taste for automobiling he now drives a standard pattern Oldsmobile. The accompanying illustration shows Sir Thomas seated in the Oldsmobile. The original photograph was taken at his English country residence at Osidge. It is said that Lipton is familiar with the car.

Not only the fact that American automobiles are gaining a foothold in England and among men of affairs is notable, but in this connection is also the obvious token that the small automobile is becoming an important factor in the stable of the prominent automobilist. Numerous instances might be cited

both in this country and across the Atlantic of automobilists who have found that, while the large, expensive and high-powered cars serve well the purpose for which they are intended, they do not furnish the sum total of possibilities in pleasurable automobiling, and hence the small car is creeping into the stable which has previously been occupied only by touring cars, record breakers or fashionable coupes, broughams and other similar rigs for conventional purposes. The runabout and its slightly enlarged prototype possess a usefulness which is constant and not alone apparent in the

case of the man who cannot afford more expensive automobiles.

Sir Thomas Lipton in an Oldsmobile affords a picture that throws an interesting light on the future as well as the present. It is to be hoped and it is reasonable to expect that before many years pictures of prominent men in automobiles of the light class will become too common to deserve reproduction as interesting phases of automobiling.

Just now, however, it is not only interesting to know that Sir Thomas Lipton, famous in another line of sport, has taken up automobiling with a will, but it is equally interesting to know that he casts favor upon a small American car built for everyday use rather than for spectacular uses.

Whether or not it is true that the automobile manufacturers in Europe do not produce small machines of the international

comparative value accorded their high powered heavy cars it is plainly evident that the exportation of small cars from the United States to Europe, especially to England, is becoming a commercial element more important than the importation of heavy cars from Europe. The building of heavy cars in this country is reaching a point where the imports will likely decrease in relation to the bulk of trade. But the light American car is almost equally sure of becoming a worldwide factor in the automobile industry. It represents the class of manufacture in which America is likely to excel.



SIR THOMAS LIPTON IN AN OLDSMOBILE.

HENRI FOURNIER BREAKS MILE RECORD

ONE MILE, - - 47 2-5 Sec.
75.10 MILES AN HOUR

ONE KIL. - - 29 1-5 Sec.
77.55 MILES AN HOUR



A new world's record for the straightaway mile—47 2-5 seconds; a 75.10 miles an hour rate! It clips the former figures a whole second. Again Henri Fournier is the record maker and holder.

A new world's record for the straightaway mile kilometer—29 1-5 seconds; a 77.55 miles an hour rate! It lowers the old one by a fifth of a second. It too belongs to Fournier.

On Thursday of last week, November 6, at Dourdan, France, on the road between Ablis and St. Arnoult, the great chauffeur regained his lost mile record honors and also for the first time in his career took unto himself the world's best figures for the straightaway kilometer.

Fournier's mount was the ill-fated Mors used by him in the Paris-Vienna race this year and which led the van until a collision with a gate the first day put it and its driver out of the contest. The racer was rated at thirty horsepower, normal, with fifty to sixty horsepower possibilities.

On another section of this same road, near Chartres, William K. Vanderbilt, Jr., an American, on August 5, took from this same Fournier his world's straightaway mile record of 51 4-5 seconds made at the Long Island Automobile Club's trials on the Coney Island boulevard, November 16, 1901, and from M. Serpollet, also, his world's best figures of 29 4-5 seconds scored at the Nice trials last April.

Henry Jarrott, an Englishman, covered a straightaway kilometer in 29 1-5 seconds at the British trials at Welbeck; but the course was sufficiently down hill to rob his figures of recognition as a legitimate world's record.

The course, over which Fournier scored the new

records, is a straightaway level stretch of road located some 35 miles from Paris. It runs through woods and its traffic is confined mainly to woodsmen carts, touring automobiles and bicycles. Its length is about three miles, furnishing ample facilities for starting and slowing down. There are broad spaces at either end convenient for turning.

When Fournier and his faithful assistant, Vidal,

reached the course in the morning the road was slippery with dew and strewn with leaves. Men were at once set to work sweeping it. At noon the official timers of the Automobile Club of France, Mm. Gaudichard and Tempier, had not arrived. They came at half past two o'clock and with their arrival the sun emerged from the clouds and set to work drying the track.

The course was still in rather poor shape for a record trial, being slippery yet from insufficient drying and the damp leaves the sweepers had not had time to remove when the party reached it after a hasty "breakfast"—to adopt the meal's native designation.

The mile was tackled first. The warming up spin netted 50 2-5 seconds, which was encouraging. On the second trial Fournier cut this three seconds and set the world's figures at 47 2-5 seconds.

Without delay the Kilometer trial was made. At the first attempt the watches showed 29 1-5 seconds. Fournier was not satisfied with merely a fifth of a second cut and started for a second trial, but the rain began to fall and further attempts at record breaking were abandoned.

The following day Fournier, in an interview, expressed himself as dissatisfied with the figures scored owing to the poor condition of the course.

CABLEGRAM REPORTS LATER MILE RECORD OF 46 SECONDS

A special cable from Paris states that Tuesday, November 11, one M. Angiers, on the same Dourdan road over which Fournier made his record breaking trips, negotiated the straightaway mile in 46 seconds. This clips 12-5 seconds from Fournier's mark and is at the

rate of about 77.5 miles an hour. It is said that M. Angiers is the pseudonym used by a wealthy Parisian and that the vehicle making this wonderful flying trip is a Mors similar to that used by Fournier in his record rides.

EIGHT MILE SPEED LIMIT DOOMED.**New York Aldermanic Committee Discusses Speed Regulation with Motorists, Cyclists, Cabbies and Kickers.**

NEW YORK, Nov. 7.—Representatives of automobile, bicycle and cab-driving organizations locked horns today with delegates from two associations of citizens at a public hearing before the aldermanic law committee on the question of speed limits for vehicles to be fixed by a pending ordinance regulating street traffic. The discussion, which included street sprinkling, lasted for three hours. There will be no further hearing before the committee makes its report. In fact there is no need for further discussion; for both sides presented their arguments fully.

The questions interpolated by the members of the committee would seem to indicate a leaning on its part toward the side of reasonable legislation. In fact it was manifest from the start to the finish of the debate that the advocates of an eight miles an hour rule were getting the worst of the debate. The chances seem bright for at least a ten mile an hour rate with some likelihood of an even more liberal sliding scale for the different sections of the city, according to the congestion or freedom of the highways in the matter of traffic.

The automobilists asked for a reasonable speed limit; one that could be observed and not such a ridiculously slow one that it would be entirely disregarded.

W. W. Niles, counsel for the National Association of Automobile Manufacturers, advanced the logical but bold proposition that there be no fixed limit but that the common law rule of reasonable use of the highway so as not to injure the rights of others, be allowed to prevail. This, he said, would cover every condition of traffic and every locality.

A ten mile limit was incidentally mentioned by the automobilists, but only incidentally, as their arguments mainly were against the absurd eight mile limit and in favor of any higher rate that might be deemed reasonable. It is the opinion that a sliding rate of speed restriction for the various sections of the city ranging from the crowded business thoroughfares, through the city boulevards and parks to the open country, will best conserve the rights of the citizens and of the automobilists as well.

President Shattuck, of the A. C. A., declared the ordinance regulating street traffic and establishing rules of the road in the matter of passing vehicles, turning corners, driving abreast, keeping to the curb, obstructing traffic through slow going and hitching horses left standing, was eminently common sense legislation. The absurd eight mile an hour limit was the one fault the ordinance showed. He read statistics showing how far fewer fatalities and injuries were traceable to the automobile than to other vehicles and proved the control over the motor vehicle from the results of the Riverside Drive brake trials last spring, in which the average stopping distances of eighteen ve-

hicles going at eight miles an hour was nine feet. It was a known and demonstrated fact, he said, that the entire traffic of the city was at a rate far in excess of eight miles an hour, which was literally only a walk. The Bronx has miles of roads without turns and on Long Island many of the city's streets are practically in the open country.

W. W. Niles, counsel for the N. A. A. M., said that law was the crystallization of common sense and that extremists never were allowed to make the laws. He argued for a rate that people would obey and would be made to obey and not a rate that every one would break. He took out his watch and paused ten seconds to show how long an automobile was to be asked to take to go one hundred feet.

James Brown, secretary of the Hackmen's Protective League, a man of fifteen years' experience as a New York driver, said cabs invariably drove at twelve miles an hour and gave distances and times to show that fifteen miles an hour was not an infrequent gait for the cabbies. He urged that automobiles in all fairness be allowed to travel as fast as cabs are. Mr. Brown was a rough and ready orator, but proved the most effective speaker of the afternoon in showing the absurdity of an eight mile speed limit.

Alderman Joseph Oatman, on behalf of the Associated Cycling Clubs, and R. G. Betts, president of the Metropole Cycling Club, speaking for wheelmen generally, favored a common sense limit. Mr. Betts said the whole present situation as regards public prejudice against automobiles was exactly the same as once existed regarding cyclists, who were railed against and pronounced juggernauts seeking to devour people. People forget, he said, that drivers of all kinds of vehicles are mindful of their safety and have as great a fear of collisions as the people who accuse them of a desire to run them down.

J. Bayard Backus, of the Committee of Fifty, thought the state speed limit of eight miles should not be raised. He pointed to the fact of a postal card canvass of citizens having shown a decided opposition to an increase in the rate. Later, on cross-examination by Mr. Shattuck, he acknowledged that not twenty per cent of the 18,000 or 20,000 to whom the cards had been sent cared enough about the question to respond.

J. L. Brown, of the West End Association, said to be an organization of chronic kickers in city matters, thought automobiles were dangerous things and should be shown no favors.

Horace Parker, of the Committee of Fifty, proudly presented an imposing array of times taken in various parts of the city at different times of the day to prove that most automobiles went faster than eight miles an hour and that few horse drawn vehicles did. This was a knockout argument until cross-examination as to the method of timing employed showed that a block of 230 feet had been reckoned as one twentieth of a mile and in consequence the times he quoted were for 4,600 feet and not for the 5,280 feet which constitute a mile.

The question of license was not reached. It will be discussed at a future hearing.

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Subscription, Two Dollars a Year, - Six Months, One Dollar

OFFICIAL ROADS FOR RECORD TRIALS.

THAT the racing committee of the Automobile Club of France should at a recent meeting decide to allow only mile and kilometer records made on a specially selected and officially sanctioned road or straightaway course is not a surprise. Recent squabbles over records must have led to this decision, which, while it works hardships upon motorists in requiring them to go to a course near Paris if they desire to hunt records that will be officially recorded, also places the handling of these trials upon a systematic basis, the benefit of which will be evident during the coming season.

As it frequently occurs that record trials are made at meetings or especially arranged congresses of the racers, the inconvenience of going to a set place lessens, especially when that place is near the automobiling center of the country. That the French club can establish a well compiled table of reliable records when they are all made on the same course is evident and sure. Hence, probably, its suggestion that the clubs or associations which govern the sport of automobile racing in other countries adopt a similar plan and thereby assist in establishing a uniform reliability in international as well as French records.

Germany and England might readily accede to this plan, but for the United States the scheme, although as good in itself in one country as in another, is not so readily applicable to present conditions. The European countries in which speed trials are frequent and important are small, roads are good and automobile centers within convenient reach of the majority of the racing automobilists. But here the racers are spread over a wide area and while the interest in the sport doubtless centers around New York, the fast machines are by no means controlled by that vicinity. Popular interest is also spreading rapidly west, as has been demonstrated by the recent Cleveland and Detroit

track races. It seems, therefore, that one official record trial road would not be sufficient.

Whether there would be much difficulty in finding and securing the use of, say, three roads in the different parts of the country, is a question for determination. Not only must a good road be secured in each locality but these must be uniform as to grade, surface, etc. The imperative nature of this consideration is well illustrated by the fact that one of the strong elements in influencing the French club to establish its official trial road was the fact that the records claimed by Jarrott in England were made over a course which had a decline of fully .03 per cent.

The new French course is said to have a grade of only .004 per cent. Such a course should be fully three miles long. To establish three courses of that length in America, with the additional assurance that the surfaces be of equal speed value and that the grade should not be more than .01, is not a task as easily accomplished as it appears casually. In view of the lack of good roads of sufficient length and local restrictions not easily raised, even for special events, it is easily presumable that the best solution of the problem, should it become a live problem, would be the building of the special roads.

STRIPPED VERSUS COMPLETE RACERS.

WITH automobile racers in use and a-building which, by their inability to conveniently traverse city streets under their own power are towed to and from race tracks, comes the question as to the actual benefit of contests between such machines when races become sufficiently common to rob the public of its present appreciation of a "freak." The cutting out of speed change gears, mufflers, differentials, rear springs, etc., in racing automobiles is not a procedure actually necessary to secure high speed. A proportionate increase in power to overcome the energy supposedly lost in these contrivances is all that is necessary to produce the track racer on the lines of the road and cross country racer. And it is more than possible that the building of racing machines which can hold their own equally well on a track or a short straight-away course or in a Gordon-Bennett cup race will more greatly enhance the popular interest in the sport than the increased production of machines which have no utility off of tracks or short distance record courses.

STATUS OF THE MODERATE WEIGHT CAR.

BOTH in the foreign and in our own reliability runs, one of the most striking features has been the good service rendered by those vehicles commonly termed "small." It is noticeable in the awards of the recent New York-Boston run that out of thirty-two contestants which were awarded first-class certificates in the 14-mile class, twenty-five were cars of less than 2,000 pounds in weight, and that the average of weight of these twenty-five vehicles was 1,377 pounds. Such a showing for light cars is remarkable, not alone for the number which secured

first-class certificates—because also in the number of starters the light vehicles predominated—but because the records of the observers show that, broadly compared, the troubles of the light vehicles were not so troublesome as those of the heavier cars.

We hear often of touring cars, and the common mental picture drawn from the expression is of a moderately or extremely heavy carriage. Yet twenty-five vehicles which are awarded first-class certificates in a contest of 500 miles at an average speed of 14 miles an hour are surely also worthy of the appellation.

The profitable lesson of these features of the reliability runs is that the field of the moderate weight, moderate price and moderate power vehicle is not only an important one, but one in which satisfactory results in the use of the machines are assured with

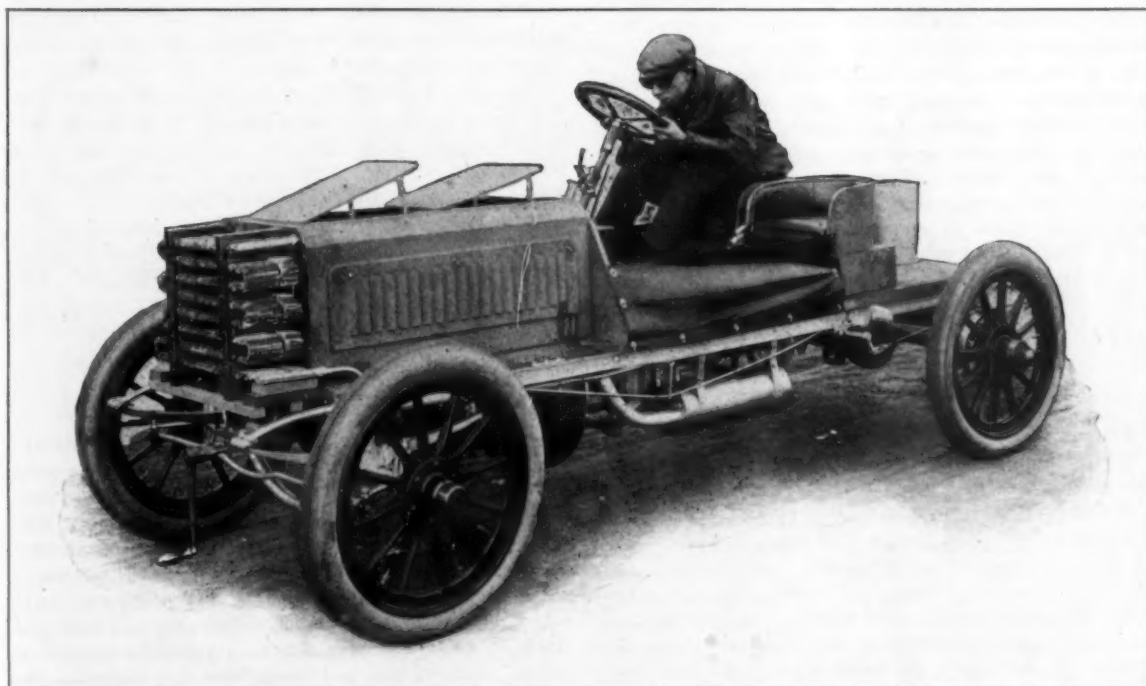
greater force than two, or even one year ago. The development of vehicles of the light class is progressing wonderfully and there are to be offered for next season's market numerous patterns, which, in general design and construction, are adaptations of the small run-about, but which, by increased wheel base, weight and slightly increased power, are staunch enough for the roughest service and stable enough to afford comfortable riding on rough roads as well as on macadam streets.

As a sign of the times it is encouraging, for the greatest "boost" which can be given the whole industry is the promotion and encouragement of automobiling among the persons who wish one automobile for purposes of general utility—the great mass of possible users.

THE NEW PEERLESS RACER

At the Detroit race meet of last month a speedy-looking racer made its appearance for the first time, and while not a competitor in the events, owing to its unfinished condition, attracted much attention because of the meritorious performances of its predecessor—the Peerless "Yellow Kid." The new machine, with L. P. Mooers aboard, is presented in the accompanying illustration. This four-cylinder model of the Peerless was brought out with the actual purpose of producing a speed vehicle, the little "Yellow Kid" having been but the regular 1903 touring model with a racing body. The four-cylinder car is built on the same general lines as the other, the chief difference being in size and

power. The same style of channel steel main frame is used and the motor is of the same design as the two-cylinder motor for the regular models. The combined water tank and cooling radiator, which is a marked feature of the 1903 Peerless, is used, while the transmission system is similar in the main. The machine, with its long square motor bonnet and diminutive driver's seat, presents a racy and striking appearance despite the grayish white color given by the aluminum paint with which it is finished. It is hinted that this machine or a counterpart may be a competitor in the Gordon-Bennett cup race.



THE PEERLESS FOUR CYLINDER RACER.



Paris, France, Oct. 27.—The racing committee of the Automobile Club of France has announced its determination to organize a huge race on the Paris-Madrid road. It is said that this decision is partly based on the desire expressed by certain members of the royal court of Spain that this road be chosen. It is likely that the first portion of the race will be over the famous Paris-Bordeaux road. The automobilists will then strike the Madrid road, the latter portion of which is said to be almost beyond description on account of numerous steep grades and poor surfaces. It is hinted, however, that the Spanish government will undertake to effect much needed repairs in the worst stretches of the road. The entire distance is 856 miles.

The details of the big contest have not yet been settled because a faction of the committee, headed by M. de Dion, wishes to have the race contested by teams of five vehicles of the same make, each of which would receive a certain number of marks at the finish in Madrid. The team then scoring the largest number of marks would be declared winner. The other faction wishes the race to be a strict speed contest such as were the Paris-Vienna and Paris-Berlin races, and in which the first vehicle to finish is declared winner. This contingency is headed by the veteran Rene de Knyff, who is chairman of the racing committee of the club. While the decision hangs in a very uncertain balance, it is probable that the speed advocates will win from those wishing the event to be promoted on the reliability test plan. The race will be run some time in May.

AN OFFICIAL RECORD COURSE.

At the last meeting of the racing committee of the A. C. F. it was decided not to allow mile and kilometer records unless they be made on a special road which has been chosen by the official time keeper. This road is about 35 miles from Paris and has a total available length of 7 kilometers, or about 4 miles. The steepest grade is .004 per cent. The club has also decided to ask those in control of the sport in other countries to choose in their own countries similar official record roads.

A further effort to secure fairness and accuracy in the running and timing of record trials is the decision of the committee that record times for the mile and kilometer, will not be recorded unless they are taken with the Mors timing apparatus. This decision is partly due to the inaccurate timing which threw the results of the recent Deauville trials into confusion. Furthermore, the clock or watch used in connection

with the Mors apparatus must be certified as to accuracy by the observatories of Neuchatel, Kiero, Geneva, or Besancon.

The Mors machine is absolutely automatic. A light cotton thread is stretched across the road at the start and this being broken by the vehicle in passing, an electric current is established which instantly starts the hands of the single watch used. The breaking of a second thread at the finish breaks the current and stops the watch hands.

An automobile show will be held April 11-20, 1903, in Brussels, under the patronage of the Automobile Club of Belgium.

Great Britain and the Cup Race.

Relative to the holding of next year's Gordon-Bennett cup race the London correspondent of the New York Herald cables as follows:

"Despite the earnest attempts of the automobile club and many prominent automobilists to arrange for holding the race for the Coupe Internationale in Great Britain next year, there is a growing feeling that the obstacles, legal and physical, may prevent its consummation.

"While there is every reason to believe that in Ireland the authorities would offer no objections, I hear that the roads there can hardly be considered suitable. Without a special sanction from Parliament, it is quite useless to think of holding the race in England; nor is there any reason to hope that Parliament would authorize the contest. Consequently one now hears the opinion expressed that it may be best for automobilism if the race be held in France next year.

"In talking with Mr. Edge I asked him what he thought of this situation. Like a good sportsman he declared he was in favor of holding the race where the conditions were most favorable to all.

"'Sooner,' he said, 'than see the contest run over bad roads in Ireland or elsewhere, if we can't hold it in England, I am in favor of the Automobile Club of France being asked to arrange to run the race in France. It looks like an extremely difficult undertaking to satisfy all the necessary conditions of such a race on British soil. I would, of course, greatly prefer to see the race contested in the United Kingdom, but, if we can't race on suitable roads in this country, then let us go where we can.

"'Next year's contest promises to be the most important in the history of the cup. France, the United States, Germany and Belgium have decided upon entering teams."

New York-Chicago Reliability Race Assured.

New York, Nov. 12.—Special Telegram.—In the discussion last night at the Automobile Club of America relative to the reliability run question the consensus of opinion was favorable to the plan projected by the Chicago Automobile Club for a New York-Chicago run. It is likely that definite action in this direction will be taken. Raising of speed limits was also favored in the discussion.

ASPHALT NEED NOT BE SLIPPERY.**Street Washing Experiments in New York by Street Commissioners and Automoblists Yield Important Results.**

Through a demonstration on Fifth avenue, New York, early Saturday morning, Maj. John M. Woodbury, than whom no city has a more energetic and up-to-date street cleaning commissioner, sought to prove the truth of his argument at a public hearing before the aldermanic law committee the day before, that asphalt streets needed to be washed and that slippery surfaces were caused by sprinkling them without previously removing the horse droppings and dirt, rather than by the mere flooding itself. Major Woodbury said that the street dirt where wet was turned into a gummy slime and that this caused all the skidding and sliding of rubber tired vehicles.

President Shattuck, of the A. C. A., in a Panhard, and P. H. Deming, in a White steam carriage, were on hand to assist in the demonstration. The question of slippery asphalts is of interest all over the country and Major Woodbury deserves great commendation for such practical efforts as Saturday's toward its solution.

An attempt was first made by two of the new watering carts to wash the asphalt. These have sprays, through which the water is forced down to the pavement direct by pneumatic pressure. The latter is obtained automatically. The water barrel on the cart is air tight with a chamber forward for storing the air that is forced into it and compressed by the normal water pressure as it rushes into the barrel.

The street was next cleaned by horse drawn "squeegees." Those used were of Major Woodbury's own invention. They consisted of ordinary snow scrapers with two-inch rubber lips protruding below the edge of the scraping blade. They were rough make-shift contrivances. Owing to the unevenness of the asphalt they cleaned only the high places and left the mud in the hollows.

Major Woodbury's light steamer described a semicircle, when turned at good speed. Mr. Deming's vehicle, though a trifle heavier, did better and only made a quarter-turn skid. Mr. Shattuck's heavy Panhard slid, but held better than either of the other vehicles.

Even imperfectly cleaned as the street was there was the greatest difference noticed when experiments were made on a section of asphalt further down the street that had been merely flooded in the old style without any attempt at washing. The vehicles skidded and slid beyond control when sharp turns were attempted at even a moderate rate of speed.

After the experiments Commissioner Woodbury said: "We have learned a few things about asphalt this morning, although the results have not been very impressive. It was 35 degrees at 7 o'clock this morning and that is only three degrees above the impossible. At 32 degrees this could not be done at all. There is no radiation this morning and the merits of the method cannot be shown to advantage. We will get the streets

clean, though, finally, no matter what we have to do. The squeegees are improvised and are not suitable.

"The 'squeegee,' a board with a rubber veil, is as old as a ship's deck, but a horse drawn squeegee is, so far as I know, my own idea. I have thought of the plan to meet the trouble. If the asphalt is wavy we will make the squeegee wavy and run them in a series, one behind the other on the same machine, so that the hole which one does not touch the other will. In doing this I will make them more flexible, with the rubber four inches long insted of two inches."

Automobilists, cyclists, hackmen and S. P. C. A. officials favored at the hearing the street cleaning department taking charge and washing the streets instead of merely sprinkling the dirt on them.

New York's experiments and legislation in this direction will be watched with interest by the automobilists of other cities.

Springfield Club Election.

The Springfield, Mass., Automobile Club met Thursday evening for its annual meeting and election, followed by a banquet. The business meeting was held early in the evening, the complete list of officers chosen being as follows: President, H. G. Fiske; first vice president, Dr. W. R. Weiser; second vice president, Dr. A. O. Squier; third vice president, A. P. Smith; fourth vice president, I. H. Page; secretary, F. A. Hubbard; treasurer, F. S. Carr.

At the banquet the principal speakers were J. Frank Duryea, of the Stevens-Duryea Co.; Harry A. Knox, of the Knox Automobile Co.; A. P. Smith, of the Automotor Co., and Dr. H. C. Martin. All spoke of their personal experiences as drivers or observers in the recent 500-mile reliability contest from New York to Boston and return.

Minneapolis Club in Working Shape.

The Automobile Club of Minneapolis held its first regular meeting last Wednesday, electing officers and committees for the following year. The meeting was well attended, and great interest was manifested throughout the proceedings. The club has been incorporated for some time, but last night the first meeting was held.

The club will hold informal meetings during the winter, at which times all matters relating to automobiles will be discussed. The following are the first officers of the organization: E. J. Phelps, president; George C. Christian, vice president; L. B. Newell, treasurer; S. D. Andrews, secretary.

Passage of the Passe-Partout.

Messrs. Cudert and Lehwess, who are on their trip around the world in the leviathan motor car, called the "Passe-Partout," arrived in Moscow on October 27, from St. Petersburg. In a few days they will start for Nijni-Novgorod and Kasan. So far their path has been strewn with roses, but the Russian winter which is now due will probably add a few thorns.

CORRESPONDENCE.

Causes of Lost Power.

Seattle, Wash., Editor MOTOR AGE.—I recently bought a second-hand gasoline automobile motor. I had the cylinder rebored and new piston and rings made for the same. I now find that it does not give as much power as it did before the change was made. Can you give me any reason for this?—C. T. B.

The probable cause is that the exhaust valve cam is not set right. This would have the effect of causing weak explosions. If the exhaust valve opens too late it would cause back pressure in the cylinder, and not allow a sufficient quantity of fresh mixture to be admitted. If too early, power will be lost, and a too great amount of the exhaust products will be left in the cylinder. The exhaust valve cam should be set so that it opens just a trifle before the piston has reached the limit of its explosion stroke.

Small But Troublesome.

Cleveland, O., Editor MOTOR AGE.—Some automobiles are like ready-made clothing. A purchaser may buy a ready-made suit from a reputable dealer, the goods are first class, the fit and style everything that could be desired. But after a few days the buttons commence to drop off, the bottoms of the pockets open, and other unseen slipshod work comes to light. A gasoline automobile of recent make had a fine motor, a first class speed transmission, and well made running gear, but the minor details which usually cause the bulk of the delays and troubles, were neglected. In the pipe leading from the gasoline tank to the carbureter was a cock of the L handle type. This was to be used to shut off the gasoline in case of disconnection of the carbureter, or to prevent any possible leakage when the motor was not in use. It was of the cheapest possible make, with a tapered plug, similar to an ordinary gas cock, and every time the vehicle was in use not only jarred partially or wholly shut, but loosened the small screw and washer at the small end of the tapered plug, allowing gasoline to leak onto the ground instead of going to the carbureter. Another point in connection with the plug was that it was attached by punching a small hole in the gasoline tank, and secured in place by float soldering, or forming a lump of solder around the outside part of the stem. Consequently it jarred loose the second time the rig was run. If, instead of this cock which cost six cents, a small globe valve, with soft metal seat had been used, with a nipple in the end toward the gasoline tank, and two lock nuts on the nipple, the nipple could be securely fastened to the side of the tank by the lock nuts and then soldered, making a workmanship-like job. The globe valve, nipple and lock nuts would cost from 36 to 38 cents.

Another automobile manufacturer connects the shaft of a manifold, mechanically operated lubricator to a shaft on the motor, by a small collar with two split pins or cotters, which fit loosely into holes through the shaft and sleeve, the object being to compensate for any misalignment of the motor and the lubricator shafts. A few hours' running sufficed to shear off one of the split pins, putting the motor and consequently the vehicle out of business. This happened to one rig twice in three days, and each time the holes were enlarged and bigger split pins put in, until the limit was reached. It was only a relief, not a cure, and finally a form of universal joint was made to replace the sleeve and split pin device. It is still doing business. The sleeve and split pin cost, probably, 10 cents, while a small universal joint would cost about 60 cents.

It can hardly be possible that makers of expensive machines are influenced, in matters of this sort, by the trifling extra cost. It can only be assumed that the man whose ingenuity is responsible for the structure as a whole entrusts these details to persons who are not entitled to his confidence.—W. B. Herman.

An Amateur's Gasoline Carriage.

Aurora, Ill., Editor MOTOR AGE.—Herewith is a photograph of a gasoline automobile which I constructed with my own hands. As I am a young man and have been in school until within two months, the carriage was built by working after school hours and

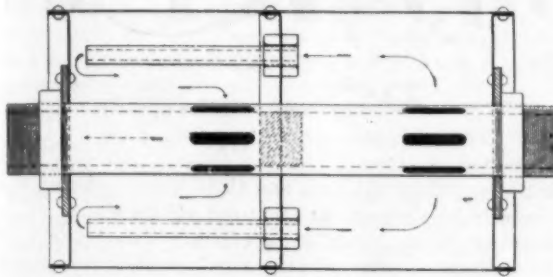


Richards' Home Made Runabout.

evenings. As it was also necessary for me to earn the money required for the building of the carriage, I was forced to divide my working time between blacking stoves and automobile building. Thus two years have been spent in the construction of the vehicle. My first ride on the machine was taken about a month ago.

The car is driven by a 4 by 5-inch, single cylinder, water cooled engine. The maximum speed is about 1,200 revolutions. Before I started to build the engine I had no knowledge of the principles and practice of gasoline engine construction, yet I not only managed

to make it, but also to build the transmission mechanism, friction clutch, spark timing mechanism, body, running gear, etc., even doing the necessary blacksmithing. The running gear is made of 1-inch



Muffler Suggested by F. E. Berring.

gas pipe with malleable iron pipe fittings corresponding to the lugs used on standard tubular running gears. The joints are pinned and brazed.

The induction coil for the jump spark system of ignition is of home construction. It has given good results and I have been able to secure an inch and a half spark through the air. I use a Dow plug.

While building the machine many of my friends made fun of it, but I stuck to the job and am gratified with the result.—Mark Richards.

Exhaust Valve Lift on Bicycle Motors.

Evansville, Ind., Editor MOTOR AGE.—I have an exhaust valve lifter attached to my bicycle motor, and when I cut the motor out by this method find that a loud, sharp report or explosion occurs in the muffler immediately after lifting the exhaust valve. Can you tell me what is the cause of these explosions?—M. B.

Failure to cut out the battery from the ignition mechanism, by means of the switch, is the probable reason. The charge of mixture is forced out of the cylinder, when the exhaust valve is held open by the lifter and discharged into the muffler without being compressed; consequently when the ignition point is reached, back firing takes place from the cylinder to the muffler.

Four Cylinder, Air Cooled Motor.

Burlington, N. J., Editor MOTOR AGE.—I am building a four cylinder engine with $2\frac{1}{2}$ by $3\frac{1}{4}$ -inch air cooled cylinders, having water cooled heads. What gears should I use for the two-to-one gearing, the shaft centers being $3\frac{1}{2}$ inches apart? Would a bronze crank shaft be advisable with babbitt bearings and steel bushings in the connecting rods, so as to avoid the expense of a drop forging? There will be three shaft bearings. The distance between the end bearings will be 13 $\frac{1}{2}$ inches, while the center bearing will be 2 inches wide by 1 $\frac{1}{4}$ inches in diameter. What horsepower should the engine develop at from 800 to 1,000 revolutions?—A. L. Hilaman.

The pitch diameters of the two-to-one gears should be 2 $\frac{1}{2}$ and 5 inches respectively, with 25 and 50 teeth of No. 10 diametral pitch and with not less than $\frac{3}{4}$ -

inch face. The bronze crank shaft would be a very poor substitute for a drop forged shaft. Babbitt metal and bronze do not work well together, especially at high speeds, having a tendency to grip or seize. The horsepower of the motor should be about 9 or 10 at the speed given.

Increasing Vehicle Speed.

Davenport, Ia., Editor MOTOR AGE.—I have an 8-horsepower gasoline carriage with a ten tooth driving sprocket. Can I increase the speed if I put on a twelve tooth sprocket?—Orey Janssen.

The speed of the carriage will of course be increased by making this change. It would, however, depend largely on the weight of the carriage and the ratio of the gearing as it now stands, as to whether it would be beneficial or not.

Simple, Effective Muffler.

Akron, Ohio., Editor MOTOR AGE.—I submit the following sketch and dimensions of a style of muffler of my own design for gasoline motors. It has proved satisfactory and is simple and inexpensive to make. It can be made by any ordinary tinsmith or sheet iron worker.

The outside shell and the three flanged parts are made of galvanized iron, and attached to the shell by means of $\frac{1}{4}$ -inch rivets. The center tube is made of iron pipe of standard size, and has a round plug in the center as shown, held in place by means of three $\frac{1}{4}$ -inch pins made to a driving fit. This is to divert the passage of the exhaust gases from the right hand end of the pipe into the compartment at the right of the sketch. They then pass through the pipes or tubes, which are held in place in the center plate by means of two lock nuts, emerging from the muffler at the left hand end of the center pipe.

A plate of iron 3-16 of an inch thick is riveted on the outside of the end flanges, as shown, to stiffen the same and form a bearing for the lock nuts which hold the center pipe in place. After the muffler is completed a small pin should be put through each lock nut into the pipe, to prevent them from jarring loose.

The accompanying table gives the general dimensions of three sizes of mufflers for motors from $3\frac{1}{2}$ to 10-horse power, respectively. It will be found much better practice to use a large muffler for a two or four

Horse-power of motor.	Dia. of exhaust pipe.	Dimensions of slots in center pipe.	Dia. and length of muffler.	No. and dia. of pipes.	Gauge of material.
$3\frac{1}{2}$ to 5	1 $\frac{1}{4}$	1 $\frac{1}{2}$ x $\frac{1}{4}$	6 x 12	8— $\frac{1}{8}$	No. 22
5 to 7 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$ x 5-16	7 $\frac{1}{2}$ x 15	10— $\frac{1}{8}$	No. 20
7 $\frac{1}{2}$ to 10	2	2 x $\frac{1}{2}$	9 x 18	12— $\frac{1}{8}$	No. 18

Table of Muffler Dimensions—F. E. Berring.

cylinder motor equal to the total capacity of the four cylinders, instead of one only sufficient for a single cylinder, as is often done. It gives the burned gases more time to expand and has a greater cooling effect on the same, besides reducing the noise.—F. E. Berring.



INDUSTRY

Cleveland, Nov. 10.—Both retail and manufacturing ends of the trade are making extensive preparations for the coming season, and the year 1903 promises to far exceed the past season, both in the number of machines built and those sold in this city. Hardly a week has passed during the past two months but there have been reports of new concerns preparing to start, either as retailers or as manufacturers, and the end is no where in sight. One thing is certain: if the retail establishments which are talked of are all carried out to present announced plans, this city will have an aggregation of stores which will surpass those of any city in the country with the possible exceptions of New York and Chicago. This week has been particularly fruitful so far as the announcement of new plans is concerned.

As was intimated in a recent issue of *MOTOR AGE*, the White Sewing Machine Co. is preparing to erect a large retail establishment. Some of its plans came to light when it was learned a few days since that the company had leased a tract of land on Rockwell street for fifty years at an annual consideration of \$1,800. The site is within a short block of the public square and postoffice and is convenient to all office buildings and hotels. Among real estate men it is generally considered that the White company made a shrewd financial move in leasing this property. The site backs on an alley and a driveway will be built at the side of the building, so there will be three entrances. The building will be of brick and steel, two stories tall and the floor space will aggregate 32,000 square feet. The first floor will be used for sales room and offices, while the second floor will be devoted to repair work and storage. An elevator powerful enough to lift the heaviest vehicle will be installed. The station will be kept open day and night in order that patrons returning from an evening ride may run their machines in and have them cleaned and overhauled for the next day's service. Conveniences will be afforded patrons in the way of waiting room, check room and toilet rooms and on the whole it is the intention of the White company to make this station one of the finest west of New York.

The Cleveland Automobile and Supply Co. is also making its announcement for another season. It has secured a lease on property located on Vincent street adjoining the Hollenden hotel. At present this site is occupied by the ruins of the music hall which burned some years ago. The walls remain as good as ever and it is the intention to roof over three floors and thoroughly overhaul the building. The building is a

large one, 75 by 150 feet, and three floors will give the company ample space to carry out all its plans. It is proposed to do repair work of every description and in addition to the ordinary repair department, there will be a small machine shop, a woodworking department, trimming department, blacksmith shop, paint shop and tire repair department. There will be space for storing fifty vehicles and room for a number of exhibition machines.

The Cleveland Motor Carriage Co. is the name of a new concern which has succeeded the Cleveland Bicycle and Automobile Co., better known under the firm name of Booth and Manley. This concern has been reorganized and is preparing to incorporate with \$50,000 capital stock. Several outside parties have been interested in the company. Negotiations are pending for the lease of the building formerly occupied as the headquarters of H. A. Lozier and Co. The building is large and has a frontage on two streets with an alley in the rear. There are exceptional facilities for storage and repair work and the location is all that could be desired. Erie street, on which it fronts, has recently been paved with asphalt and it is now on the main line of travel. The firm has arranged to handle the Hoffman steam and gasoline lines and the National Vehicle Co.'s electric and gasoline machines throughout Ohio. It is probable that it will continue to handle Cleveland and Rambler bicycles and Cleveland motor cycles. It is expected the store will be occupied before the first of the year.

Another new concern in the field for next season is the Ohio Motor Car Co. It is not known who comprise the concern or where it will locate, as the organization has been kept very much under the hat, but it is understood that representatives of the International Motor Car Co., of Toledo, and the Northern Manufacturing Co., of Detroit, were in the city recently and closed with this company for their lines.

An important change has taken place in the affairs of the Woodruff Automobile Co. Some months ago the Woodruff brothers, who had completed a successful vehicle of attractive design, induced Hon. Luther Allen, J. B. Krause and several other gentlemen interested in a prominent banking institution in this city, to invest in the above mentioned company. Since then the factory has been conducted at Akron where the first machines were built, and preparations had been made for an active campaign this season. Now comes the announcement that the Cleveland people have sold out

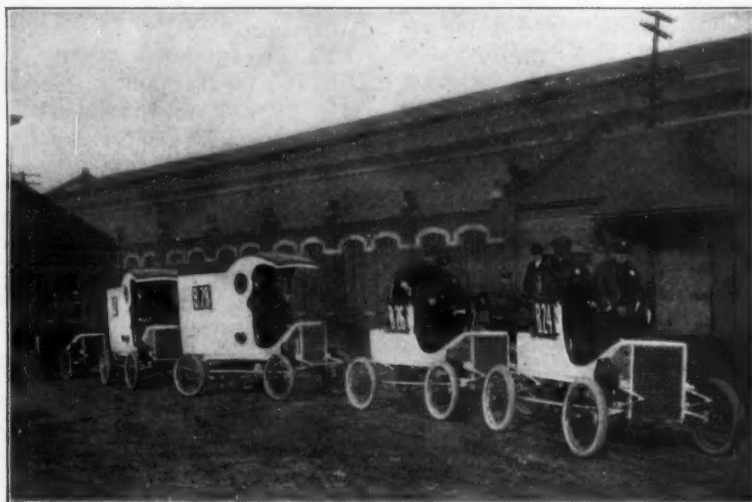
White Steam Carriages

HAVE BEEN AWARDED
FOUR GOLD MEDALS

For Their Magnificent
Performance in the

A. C. A. Reliability Run.

Throughout the 500-mile Reliability Run from New York to Boston and return the **WHITE STEAM** formed a procession which moved with absolute steadiness—making every control on schedule time and coming through without mishap of any ind. Out of 75 entries 17 made perfect scores, and of this number 4 were Whites.



The three White Steam Stanhopes each received the highest possible award, while of the two White Delivery Wagons (the only automobiles of this type ever completing an endurance contest), one received a gold medal for perfect performance while the other had only one stop—due to its handling.

— — — — —
Write for full particulars, including Prof. Thurston's report on our
Steam Generator, and Official Reports of important Endurance Contests.

WHITE SEWING MACHINE CO.

(Automobile Department)

CLEVELAND, OHIO.

22 Union Square, New York, N. Y.
509 Tremont Street, Boston, Mass.
300 Post Street, San Francisco, Cal.
5979 Centre Ave., East End, Pittsburgh, Pa.

1761 Stout Street, Denver, Colo.

609 Main Street, Buffalo, N. Y.
12 Woodward Avenue, Detroit, Mich.
300 Rose Building, Cleveland, Ohio.
4259 Olive Street, St. Louis, Mo.

their interests to the Aultman and Miller Co. of Akron, a concern which for many years has been active in the manufacture of harvesting machinery, but which has recently sold out its business to a combine. The company has a large factory in Akron and will undoubtedly become a very important factor in the business. It is understood that the Woodruff brothers will continue with the company at the head of the manufacturing end of the business. The Woodruff vehicle is a light runabout and the few that have been completed have made a good showing.

The Superior Automobile Co., headed by I. H. Lewis, an old bicycle man, has established a factory on Clara street, where plans are being made to turn out a number of vehicles for next season. The carriage is of the phaeton type and is equipped with a single cylinder 5 by 6 gasoline motor. The mechanism shows several good features.

A. L. Moore, president of the Cleveland Automobile Co., has leased a large space in the Bradley building, corner of Lake and Water streets, which will be used for assembling and salesroom. This company has all the parts of its vehicles built to order by parts makers and then the parts are assembled. The first lot of 100 machines is now being put through. One of the machines has been in use on the streets for several months.

The American Motor Carriage Co., whose factory is located on East Prospect street, has decided to continue in its present quarters for the coming season at least and the factory is being enlarged so that the facilities will reach a very respectable figure.

The Star Automobile Co., whose incorporation was recently announced, is now looking for a building site in the east end manufacturing district of Cleveland, and as soon as possible work will start on a large factory. The company has ample capital to commence work at once on a large scale and the parties interested have had long experience in various lines of manufacturing. At a meeting held last week the following officers were elected: H. H. Hodell, president; J. A. Mathews, vice president; W. A. Dutton, secretary-treasurer; J. H. VanDorn, E. I. Leighton and F. Schneider, directors.

The F. B. Stearns Co. is preparing plans for a large addition to the factory. It is the intention to more than double the capacity of this season and work will start as soon as possible on the 1903 product.

Division of Badger Interests.

Owing to the growth of business in each of the two departments of the Badger Brass Mfg. Co., of Kenosha, Wis., it has been deemed expedient to separate the manufacture of plumbers' supplies from the production of the well-known line of Solar automobile and bicycle lamps. To effect this end Messrs. C. N. and W. J. Frost have retired from the Badger Brass Mfg. Co. and have organized the Frost Mfg. Co., which will continue the manufacture of the plumbers' supplies line. Their interest in the old company has been purchased by L.

J. Keck, who has for six years been on the road in the interests of Solar lamps, and R. H. Welles, the present treasurer and general manager of the company. With this change in the organization of the Badger company, its lamp business will be continued as before. It will be pushed vigorously as better facilities for producing the Solar motor lamps and the 1903 models of gas and oil lamps and headlights have been secured.

The factory and main offices will remain in Kenosha, but January 15 the company will open a branch office in New York. A complete line of stock and parts will be carried, that the eastern trade in the lamps may be handled promptly.

Changes in N. A. A. M. Executive Committee.

New York, Nov. 5.—At the meeting of the executive committee of the N. A. A. M. today Lucien Gibbs, of the Vehicle Equipment Co., and R. E. Olds, of the Olds Motor Works, were elected as members of the committee in place of J. H. Ballantyne and D. E. Rianhard, resigned.

The Prescott Automobile Co., the Studebaker Bros. Mfg. Co., the Berg Automobile Co., the H. H. Franklin Mfg. Co. and the Sintz Motor Car Co. were elected active members. The Whitney Mfg. Co., the New Process Rawhide Co. and the Conger Mfg. Co. were added to the associate membership roll.

In addition to the annual banquet at the New York show there will be a smoker or entertainment of some kind. P. H. Deming, Percy Owen, H. Ward Leonard, O. J. Woodard and Lucien Gibbs were appointed a committee to promote it.

Washington Show Plans.

At a meeting of the Washington Automobile Dealers' Association held October 28 it was decided to hold the third annual automobile show in Washington some time during the month of April, 1903. Notwithstanding the fact that the demand for space for the last show was greater than could be supplied, the association cannot secure a larger hall so well adapted to its purpose as that of the Washington Light Infantry Corps, and, therefore, will probably decide to hold the show there again. It was proved that the experiment of holding the show in the early spring in Washington was a great advantage to those desiring to avail themselves of the seasonable weather to demonstrate to prospective customers the road qualities of their vehicles.

The net result of the previous show was the sale of a large number of vehicles, and a tremendous impetus was given to the business of the local dealers, especially those who had taken on new lines of vehicles which had not been previously shown in Washington. Many of the exhibitors announced at the close of the last show their determination to show here at the next opportunity, especially if the association would have a race meet at the time of the show.

The coming year will probably witness several new departures from the usual methods of handling auto-

mobile exhibits. It is quite likely that the exhibitors' spaces will be divided off by railing, and covered with matting or other suitable material, and the spaces requiring decoration be decorated, so that the visiting exhibitor will be spared the trouble of preparing his space. At this time it is known that the following well-known vehicles will be exhibited: Columbia, National, Waverley, Towanda, Locomobile, Reading, Auto-car, Packard, Oldsmobile, Toledo, Rambler, U. S. Long Distance, Spaulding, Friedman, Knox, Elmore and Stevens-Duryea.

Arrangements are now well under way for holding a big race meet in connection with the show. If possible, the newly remodeled track at Benning, D. C., will be secured, and prominent racing men will be invited to compete.

Lindsay Plans Large Output.

The Lindsay Automobile Parts Co. has purchased the business of the Stutze Manufacturing Co., of Dayton, Ohio, and moved the machinery to Indianapolis, combining it with the new Lindsay plant. Mr. Stutze has been engaged to take charge of the gas engine department. The Lindsay company is now in a position to furnish complete running gears for electric runabouts, with or without motor attached, and gears with gasoline motor attached, ready for the body paint and trimming. It can make quick deliveries of rear axles with differential and live driving shaft, 5-horse power gasoline engines, and its new light running speed transmission gear. It is also the intention of the company to build and put on the market 500 to 1,000 gasoline runabouts during the season of 1903. This wagon will be delivered complete. The running gear will be of the reachless type, with four full elliptic springs, Stanhope body, and 68-inch wheel base. It will be built in two styles, called 1 A and 2 A. The 1 A style will be built with the Lindsay anti-end thrust axle and with either in chain or herringbone gear. It will have wire wheels. The 2 A style will be built with the Lindsay 2 A axle and with wire wheels regularly and wood wheels to order. The maker is now ready to quote prices on these wagons.

Result of a "Happy Thought."

Some three years ago Thomas Midgley was one day at work on a new gasoline motor that he proposed placing on the market, when a friend who knew of Mr. Midgley's wheel building experience in a bicycle way dropped the hint: "Midgley, who don't you build an automobile wheel; a wheel that can be used not only for automobiles, but for all other vehicles as well? The present wheels, as I know by experience, are not entirely satisfactory, and there is a wide field for a good automobile wheel." Mr. Midgley commenced to think, and his training in the shops of the Morgan Engineering Co., of Worcester, Mass., suggested a tubular steel wheel. The gasoline motor was promptly shelved—with the result that the Midgley tubular steel wheel is today commanding wide attention.

The growth of the Midgley company has been

rapid. It started in a small shop and less than a year ago moved into the present commodious quarters, which are already found too small. Now a new three-story brick addition is about to be erected. The Midgley Mfg. Co. is so confident of its claim for indestructibility of the tubular wheel that it offers to present a new wheel to any user that breaks one in fair usage. The Midgley wheel is made so that it will fit any hub and bearings, and many purchasers of new automobiles are accordingly specifying it in their orders.

Below is a striking testimonial to the enduring qualities of the Midgley wheel:

Chicago, Ill., Midgley Mfg. Co.—I write to ask you to hurry up my last order for wheels, as the vehicles for them are nearly completed. Will also state incidentally that the right-hand front wheel of my demonstration wagon, which sustained a terrific collision with a curbstone last April, survived it, and was ready, as I wrote you, for another, has already received it. Another spoke has been badly demoralized so far as looks are concerned, but the business capacity of the wheel is still uninjured, as its strength is apparently not impaired, and the wheel is not knocked out of true. Before the spoke struck the curb, the rim came in collision with the projecting corner, and was turned inside out; that is to say, the rim was doubled back so it pointed toward the hub; I could put my knife blade under the bottom of the rubber tire. To state that I was surprised that the metal stood the test of bending this rim back into shape with a machinist's hammer is putting it mildly, as I certainly expected it would crack, if not break off entirely. The repair can only be detected by the hammer marks. If you continue to put this kind of metal in your wheels, it will be a hard matter to put a Midgley wheel out of business.—George T. Glover.

In the Suburbs of Civilization.

Washington, D. C., Nov. 8.—The State Department yesterday made public reports from United States consuls relative to the automobile trade in foreign countries. Consul General Bartow, writing from Mexico City, says that most of the automobiles in use in that city are of American manufacture. Consul Berliner reports from Teneriffe that he believes there is an opening for American made machines in the Canary Islands.

Consul General Seeger, at Rio Janeiro, is inclined to believe there is little future for the motor carriage within the Brazilian republic. Chileans have not yet seen an automobile in their country, reports Consul Mansfield at Valparaiso.

A few automobiles have made their appearance in far away Cape Town and in other coast towns in Cape Colony, but because of the recent war few have reached the interior. The automobile industry is in its infancy in British India, according to the report of Consul Fee. He says few countries offer more attractions for the use of the automobile than India.

American Consuls in China report that machines might find a sale in Dalny, Port Arthur and some other cities, but the streets of a great many towns will hardly permit of their use. Consul General Williams reports from Singapore that there are two automobiles in that city, which he says are "not much used." The

Sultan of Johore, who has a residence in Singapore, brought a large automobile from Europe, but because of the noise it made many complaints were forthcoming.

Mr. Baker, Consul at Sydney, says the pleasure of automobiling in Australia is greatly lessened by the congested conditions of the streets, and the suburban roads are not inviting. There are a few machines mostly of French manufacture, in use.

New Interest and Vigor at Sandusky.

Sandusky, Ohio, Nov. 11.—At a meeting of the directors of the Sandusky Automobile Manufacturing Co., held a few days ago, the resignations of R. S. Thomas as president, and J. J. Jackson as a director, were accepted. These gentlemen were among the original promoters of the company. The following officers were then elected: James J. J. Hinde, president; E. J. Cable, vice president, and C. H. Ely, treasurer. Ten thousand dollars in cash was subscribed by the new officers and the factory building which had been planned will be pushed to completion. The Sandusky Automobile Manufacturing Co. has demonstrated its ability to build a practical vehicle and already it has received orders for a number of carriages for next season.

Automobile Plant to Be Sold.

On recommendation of the receiver an order has been issued authorizing the sale of the property of the Hoboken, N. J., plant of the American Electric Vehicle Co. for \$15,000 cash. The prospective purchaser is George T. Lister, formerly vice president, treasurer and general manager of the company. He said that he was acting on his own account. The receiver was appointed shortly after the recent assignment made by J. Herbert Ballantine, of this city, who was largely interested in the enterprise.

Detroit Show Announced.

The Tri-State Automobile and Sporting Goods Association has announced that it will hold its second annual show in the Light Guard Armory, Detroit, February 9-14, 1903. The show will be on a larger scale than that of last year and it is said that the majority of the manufacturers who exhibited last season have already signified their intention of being present at the coming exhibition.

New Agencies for Temple.

The Ralph Temple and Austrian Co. has secured the Chicago agency for the Franklyn, which Mr. Temple pronounces the most pleasing vehicle he has ever seen. The same company will also handle the General Automobile and Mfg. Co.'s line, which, he says, will consist of two patterns, one with a two-cylinder motor, next season; and a line of machines made by the Conrad company, of Buffalo.

Condensed Trade News.

John L. Poole, of the Olds Motor Works, will sail for Europe on the Augusta Victoria on Nov. 6, to visit Holland, Sweden, Germany, France, Spain, Austria,

England and Russia. He expects to return in time for the New York show.

The Autocar company's sample of the 1903 model has arrived in Chicago.

The Ohio Motor Car Co., of Cleveland, has been incorporated with a capital stock of \$5,000.

A new factory building to cost \$6,000 is being erected for the Letcher Automobile Co., of San Jose, Cal.

The Edgerton Motor Mfg. Co., of Philadelphia, has been incorporated with a capital stock of \$300,000.

The Country Club Car Co. has been organized at Kittery, Me., to manufacture automobiles. The capital stock is \$400,000. The officers are local parties.

It is reported at the U. S. Long Distance Automobile Co.'s New York garage that Ralph Temple left an order for fifty Long Distance machines before his return to Chicago.

The Autocine Co., of New York, has been organized with a capital of \$3,000. Its announced purpose is to manufacture autocines, which are doubtlessly some variety of automobiles.

Banker Brothers have secured a long lease on Edwin Hart's stable, 629 to 633 North Broad street, Philadelphia, which will be remodeled into an automobile station by A. Raymond Raff, builder.

A final dividend of 1½ per cent, making a total dividend of 6½ per cent has been authorized by the court in the matter of the claims against the Milwaukee Automobile Co., which failed early last summer.

The Ohio Automobile Co., of Warren, Ohio, which manufactures the well known Packard gasoline carriage, has changed its name to the Packard Motor Car Co. Two additions to the factory at Warren are in progress.

The New York secretary of state has received the certification of the Long Island Motor Co., that half of its capital stock, which amounts to \$100,000, has been paid in. The directors of this company include A. R. Pardington, Frank G. Webb and L. R. Adams.

The Auto-Vehicle Co., of Los Angeles, Cal., which was organized last May and which has been carrying on experimental work since, has moved into a new brick factory. The company will make a specialty of light delivery wagons but will build touring cars to order.

The Cincinnati Automobile Co. has been reorganized with \$25,000 capital and will embark in the manufacture of steam automobiles. The machines will be built upon designs made by President Gray and will be propelled by a ten-horse-power motor. The present quarters will be enlarged.

E. B. Olmsted, now secretary and sales manager of the Conrad Motor Carriage Co., of Buffalo, was in St. Louis and Chicago early this week, introducing to three or four large houses the company's steam delivery wagons. The Conrad company will introduce a gasoline runabout as well as new patterns of steam cars, the engine and boiler of the latter being in front.

BROKE the RECORD.

A Winton Touring Car, on October 15th, ran the 250-mile course between Boston and New York in the remarkable record time of less than 12 hours. The car won a perfect score and had the advantage of complete check by the control officials of the Automobile Club of America's New York-Boston-New York Reliability Run.

THE PERFORMANCE CLIPPED SIX HOURS FROM THE PRE- VIOUS BEST RECORD

This car, owned by Mr. H. D. Corey, the well known Boston banker, had just been released from customs after completing a several thousand miles successful tour upon the European continent. It was a 15 H. P. car with standard 1902 equipment throughout.

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The enviable record of GOODRICH CLINCHER VEHICLE TIRES on track or roadway has not been approached by automobile tires of any other make.

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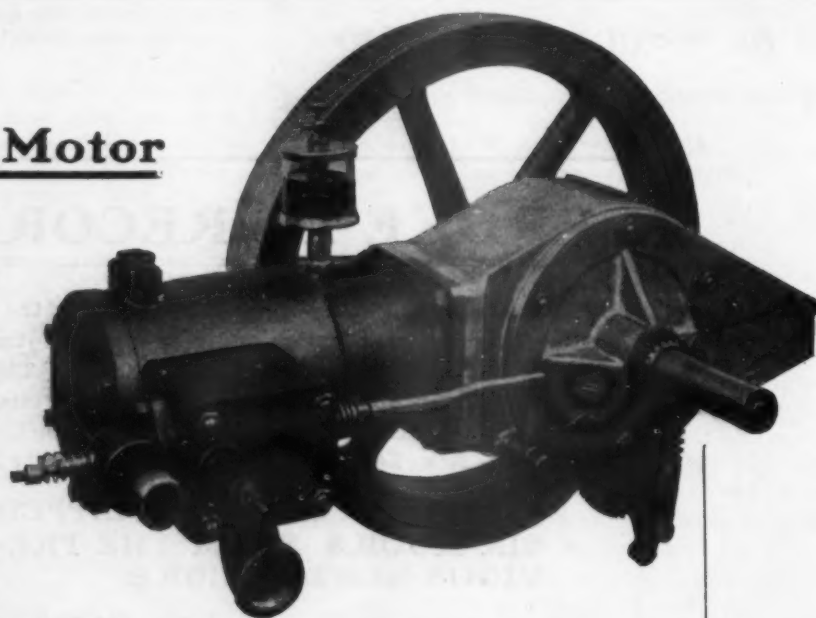
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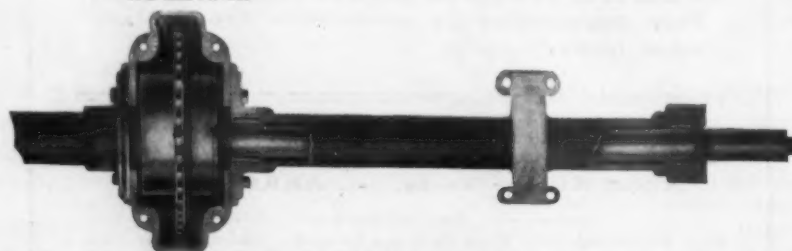


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OF POPULAR INTEREST.

Study Automobiles in College.

A department of automobiles has been added to the curriculum of the Columbia University, New York. This novelty in the educational line will become a feature of the regular courses in mechanical engineering. Dr. C. E. Lucke, under whose supervision this branch of instruction will be maintained, speaks of it as follows:

"With the growth of the automobile, not merely as a car for pleasure or as a touring machine, the demand for skilled and scientific builders will increase. Of course, it is intended to fit men for other work than merely the building of motors for automobiles. The electric car, as a traction machine, is closely allied to the automobile, and the skilled builder of machinery for such cars is a man who will be in great demand.

"The generation of power, fuel consumption, etc., will be one of the most important of the subjects to be handled. The engineer who designs motor cars must be in a position to design any style of motor, or carriage, he may be called upon to build. For instance, if a brewer should say, 'I want a truck with a propelling capacity for five tons of beer barrels,' one must be able to sit down and plan a motor of sufficient power to propel such a load over such roads as the proposed truck would have to run. This can be done with scientific accuracy, and it is only science that is capable of making such plans."

All styles of motors will be thoroughly explained, except the electric, which properly comes under the school of electric engineering. Steam, gasoline and gas combustion will be taken up separately and the construction carefully demonstrated. An automobile will be set up in the laboratory, and the generation of power, fuel combustion and every feature will be made the subject of practical demonstration.

Chicago-Milwaukee Boulevard.

The agitation in the interest of the completion of Sheridan Drive, which now extends from Chicago to Lake Forest, running along the shore of Lake Michigan, so that it will furnish a through boulevard to Milwaukee, has taken on new life and it is now predicted that the road will be finished within a year. Automobileists in Racine and Waukegan are actively interested in the project.

The driveway will follow the lake shore north to a high bluff near North Chicago, thence by a subway under the Northwestern railway tracks to Waukegan, connecting there with the section of the drive completed through that city. From that point the drive will follow the Waukegan-Kenosha road through Zion City along the site of the proposed Zion temple and into Wisconsin.

Two miles south of Kenosha it will bend to the lake shore again and run through a splendid oak grove and enter Kenosha on the most exclusive residence street of that city.

The Northwestern Railway Co. will, it is understood, give every encouragement to the completion of the drive, and the building of subways will do away with grade crossings.

The cost of the drive will be practically paid by the owners of property adjoining it, and little or no expense will be laid on the farmers. They will be expected to pay only for the repairs on the driveway. The work of construction will be started before the close of the present year and it is expected that the road as far as Kenosha will be completed in the early spring.

Evidences of the Motor Age.

In Paris the total number of horses in use in 1902 was 96,698, while in 1902 it is only 90,796, a reduction of about 6 per cent. In London during the same time the equine population has decreased over 10 per cent., while in Berlin and Vienna the falling off is even more marked. In the United States the suppression of the usefulness of the horse by the trolley car has been astonishing in its extent. Today in New York city alone there are less than two-thirds of the horses formerly employed. So far the automobile appears to have made quite an inroad upon the horse business, and it is almost assured that the use of more scientific ideas with regard to the construction of street paving and country road building will have a still greater effect upon the passing of the horse.

Chased by a Street Car.

After a chase through several miles of streets, Marshal Stanberger of East Cleveland, Ohio, succeeded in capturing Loftin Johnson, son of Mayor Tom L. Johnson, and his automobile a few nights ago. Mayor Johnson's son, who has been the official chauffeur of the now famous automobile campaign throughout Ohio, was charged with violating the speed ordinance several times over. It appears that Mayor Johnson was going to Painesville to deliver the last speech of the campaign and in some way missed the Painesville car. Loftin Johnson is said to have suggested that the automobile still had considerable speed left, despite its 2,000 mile tour and accordingly they went after the fleeting street car at a pace which the astonished town marshal estimated at about thirty-five miles an hour. The marshal pursued the carriage in a special street car but never sighted it. Late in the evening, however, he was pleased to see the machine at the side of the road awaiting the return of the mayor. The son of the family was immediately placed under arrest and before the town justice was fined \$10 and costs. The worthy mayor pleaded the exigencies of the situation but the country justice happened to be of a different political complexion and the argument fell on barren ground.

Catechism of the Automobile Steam Engine and Boiler

PART 6.

Figure 23 shows another form of throttle valve, somewhat different from that shown in Figure 19. The valve proper is of quadrant form, as shown in the section, and is at all times kept upon its seat by the steam pres-

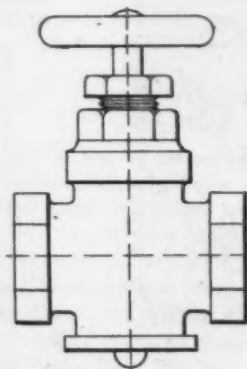


Fig. 23.

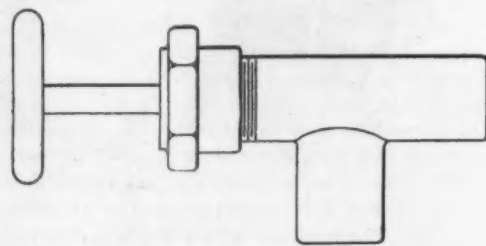
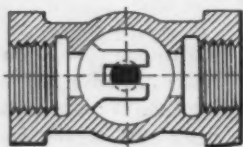


Fig. 24.

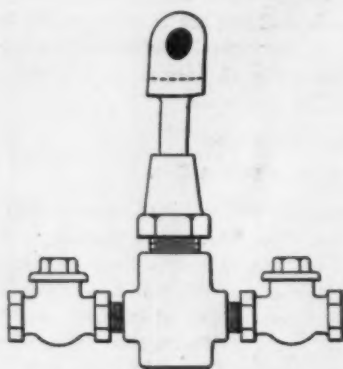


Fig. 25.

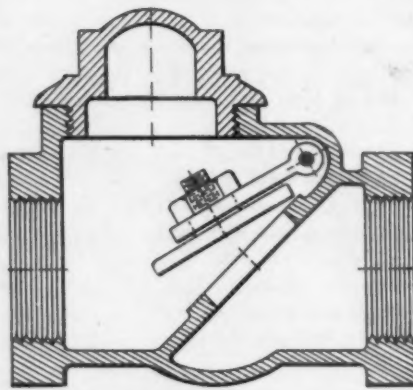


Fig. 26.

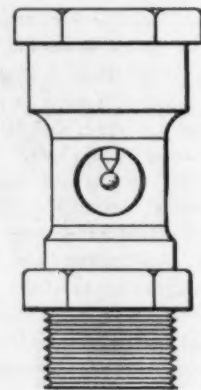


Fig. 27.

sure, whether full or partially open. Its sliding action further keeps its seat in good condition and it does not need regrinding as frequently as the bevel seat type shown in figure 19.

The needle valve shown in section in figure 16, in connection with the generator, is shown in full outside view in figure 24, so that from the two views its construction may be clearly understood.

Figure 25 is the pump which is used for forcing the water into the boiler, instead of an injector, as shown in figure 21. It consists of a reciprocating plunger working in a stuffing box around its upper end, and two check valves of suitable type, as shown in the drawing. The water is admitted to the pump body through one of the check valves and forced out during the down-

ward stroke of the plunger into the boiler below the water line.

A form of check valve which is frequently used in connection with the water pump shown in figure 25 is illustrated in figure 26. It is of the swing check type and has the valve proper loosely swiveled in the hanger above, so that it may seat properly at all times. It has one advantage over the bevel seat type of valve, that it has a freer passage for the water than the bevel seat form of valve.

Figure 27 is a sight feed oiler, used in connection with the manifold type of lubricators, used to oil the parts

of an automobile. It is so regulated, by means of a needle valve, that the oil can be set to feed at any number of drops per minute. The oil feed can be plainly seen through the glass tube shown in the drawing.

EDITOR'S NOTE.—This concludes the series on the steam engine and boiler. Any queries or comments from readers concerning the subject will be given careful attention.

Spontaneous Ignition of Gasoline Motors.

One of the greatest difficulties encountered by users of gasoline automobile motors is that due to spontaneous or self-ignition of the compressed charge. Sometimes after the battery is cut out the motor will continue to run. Also the ignition control sometimes

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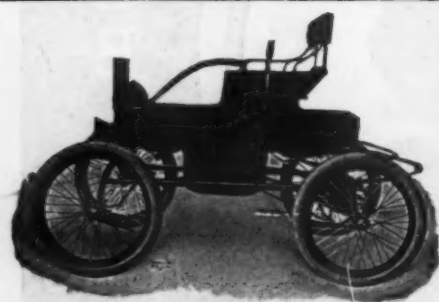
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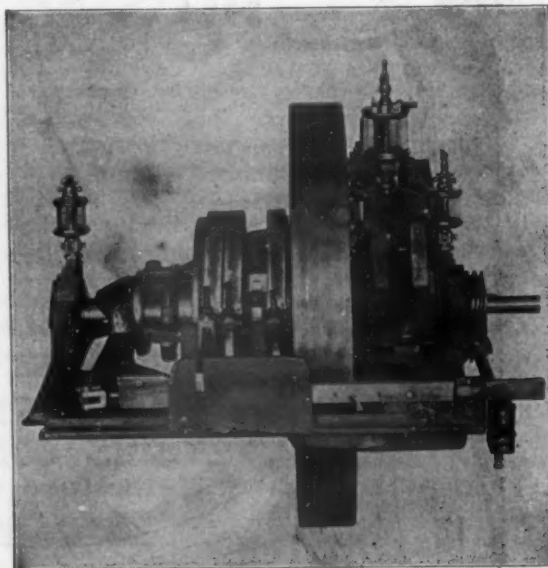
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fails to regulate the speed of the motor, no matter in what position it may be set. Back firing also occurs at times, before the piston has reached the ignition point, causing the motor to suddenly kick and generally stop on the next turn.

These incidents have been more or less a source of mystery to both makers and users of gasoline motors, until recent experiments brought to light the source of these disagreeable happenings. Tests were made with varying mixtures of gasoline and air in a steel tube of sufficient strength to withstand the greatest possible internal explosive force that could be brought to bear upon the same. The tube was brought to a red heat, but the mixture failed to explode, as was proved by allowing the tube to cool and afterward examining the contents. A mixture of air and cylinder lubricating oil of 430 degrees fire test was then put in the tube, and under the same conditions was readily ignited.

Assuming the internal temperature of the cylinder to be about 250 degrees Fahrenheit and the compression about 75 pounds internal pressure—which would add a temperature of 374 degrees Fahrenheit—its final temperature would be about 624 degrees. This is far above the igniting point of the cylinder lubricating oil employed in the test previously described, thus proving conclusively that lubricating oils of a far higher fire test than those now used are necessary to prevent spontaneous or self-ignition of the charge before the correct ignition point is reached.

English manufacturers are now marketing lubricating oils of a fire test from 650 to 700 degrees Fahrenheit for this purpose, and it would certainly be a profitable and paying investment for American makers of lubricating oils to market similar products to remove the present troubles due to cylinder oils of low fire test.

Aluminum in Automobile Construction.

Aluminum, the lightest of all known commercial metals, has undoubtedly a great future before it in most all of the various arts and industries, but as a medium for the construction of sliding or rotating parts of machinery, is of no value whatever on account of its "gripping" or "seizing" tendency when used in connection with itself or any other metal commonly adapted to these purposes. Aluminum or aluminoid for use in automobile crank chambers, transmission gear cases, steering hand wheels and controlling levers, bodies, motor hoods or bonnets, etc., are invaluable mediums on account of their lightness.

But for bearings or bushings, nothing can equal phosphor bronze or gun metal, while for shafts or tubing, steel so far has no competitor and the chances are extremely small that it ever will be superseded. For cylinders, valve chambers and pistons, cast iron or semi-steel stands without a rival. Owing to the fact that aluminum or its alloys cannot so far be successfully soldered or brazed, its use is prohibited in many places where it otherwise would be desirable. As a conductor of heat it excels copper and can be suc-

cessfully used for radiating fins in water cooling devices or for ribs on the cylinders of air cooled motors. The melting point of commercial aluminum is about 1157 degrees Fahrenheit, and its weight, 160 pounds per cubic foot.

Recently Issued Automobile Patents.

No. 711,937, to Oscar M. Carman, of Indianapolis, Ind., covers a change speed gear the main characteristic of which is that the speed may be changed from one extreme to the other without putting the intermediate gears into operation. The device comprises a number of spur gears of different diameters rotatably seated on expansible clutches. The clutches are in connection with a tubular shaft and the operating member of the device is located within the shaft. The apparatus for controlling the various clutches comprises a tubular sleeve fitting the bore of the main shaft and provided at the end with expansion blocks by which the several clutches are put into action. Within the sleeve is a rod with a taper end by which the above mentioned expansion blocks are forced outwardly by forcing the taper portion of the rod between them. In operation, the hollow sleeve is moved to a point where the expansion blocks will act on the proper clutch, after which the taper rod is moved between the blocks, thus locking the desired gear into operative connection with the main shaft.

No. 711,940, to G. E. Cordeau, of Brooklyn, N. Y., presents an alarm for automobiles comprising a horn and means for operating it by the foot. Beneath the foot board of the vehicle is a cylinder in which is a piston for providing the necessary air pressure. This piston is held in the upper end of the cylinder by a spring and is fitted with a rod passing up through the foot board in such position that it may be pressed down by the foot, which action sends a volume of air through the horn.

No. 712,001, to A. E. Osborn, of New York, is devoted to a three-wheeled motor vehicle in which the steering and driving are both done by the front wheel. That wheel is provided with a hub of large diameter and fitted with a pivotal bearing in the frame so that the wheel may be moved in a horizontal plane. Extending backwardly from the inner member of this hub is an auxiliary frame upon which is located the motor and accessories. The rearward end of the frame is in the form of a segment of a circle concentric with the pivotal support of the front wheel. The steering device comprises a rack and pinion gear operated by a hand wheel.

No. 712,058, to A. M. Gloag and R. W. Fletched, of Edinburg, Scotland, covers a change speed gear consisting of a series of planetary gears designed to be put into action by the application of band brakes. The various brakes are applied by the action of a shaft provided with a number of cams adapted to apply the various band brakes according to the position of the cam shaft.

Motor Bicycle Topics.

Successful Motor Cycle Century.

New York, Nov. 8.—An open century run was promoted by the New York Motor Cycle Club over Long Island roads on election day. There were thirty starters with fast and slow limits of eight and ten hours. Two riders, Roland Douglas and Guy Warner, arrived in exactly eight hours. Fifteen riders covered the course within ten hours and received medals.

Elastic Chain Drive for Motor Bicycles.

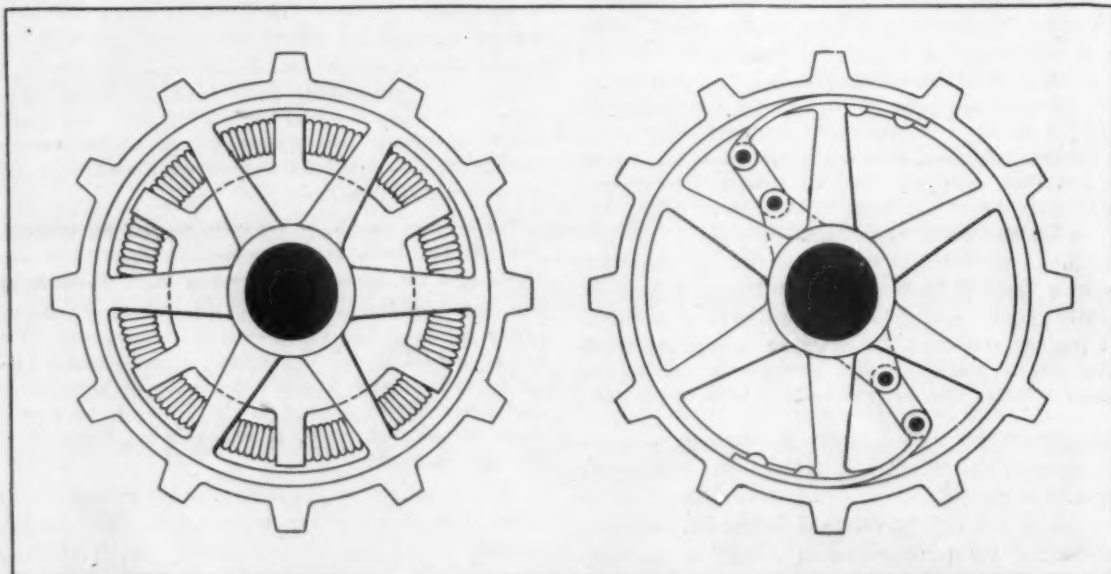
The accompanying sketch shows two forms of spring drive sprockets suitable for use on a chain driven motor bicycle. The sprocket wheel is mounted loosely

spider and the spokes of the sprocket, alternately. These coil springs are of sufficient strength so that they will not be compressed to their limit before the spider has put the rear wheel in motion.

Both these devices are double acting, that is, a movement of the sprocket in either direction will have the desired cushioning effect when starting the wheel, and for receiving the effect of shocks or blows due to inequalities in the road surface.

Life Saved by Motor Bicycle.

A physician in a small English town, being called upon to attend a patient with a serious case of tetanus, or lockjaw, found that the necessary serum for use in the case could not be obtained from the local drug store. To get it from the nearest supply depot, which was nearly 60 miles away, the train connections would take at least 15 hours, while 10 hours at the extreme would mean certain death for the patient, if the serum could not be obtained. A friend



TWO FORMS OF SPRING DRIVING SPROCKETS FOR MOTOR BICYCLES.

upon the hub of the rear wheel in both cases, and a form of spring drive interposed between the sprocket and the hub or spider, which is attached to the hub.

In the figure at the right in the illustration the spring cushion is effected by means of two flat springs attached to the rim of the sprocket as shown. A double-ended lever upon one end of the hub is connected to these springs by means of short links. An effort to rotate the hub in either direction by means of the double-ended lever on the same, will cause the springs to have an inward deflection, which will continue until the strength of the spring is sufficient to overcome the inertia of the rear wheel and propel the machine.

The figure at the left of the drawing shows another form of spring drive in which a spider is mounted upon the hub of the rear wheel, carrying coiled compression springs interposed between the arms of the

of the doctor, who owned a motor bicycle, volunteered to go for the medicine, and made the round trip in 6½ hours, the patient's life being saved thereby.

Care in Buying a Motor Bicycle.

The buyer of a motor bicycle should beware of new inventions and unknown or untried makes. It is far better for an intending purchaser to take the safer course and get a standard machine made by a reputable maker who has created a name for his goods, in preference to buying a machine which is recommended for its points of striking novelty, no matter how promising these points may appear. Buying a motor bicycle of unknown reputation is far more risky than buying a horse from a stranger, which is risky indeed.

Particularly cautious must the intending purchaser be in buying a second-hand motor bicycle. During the



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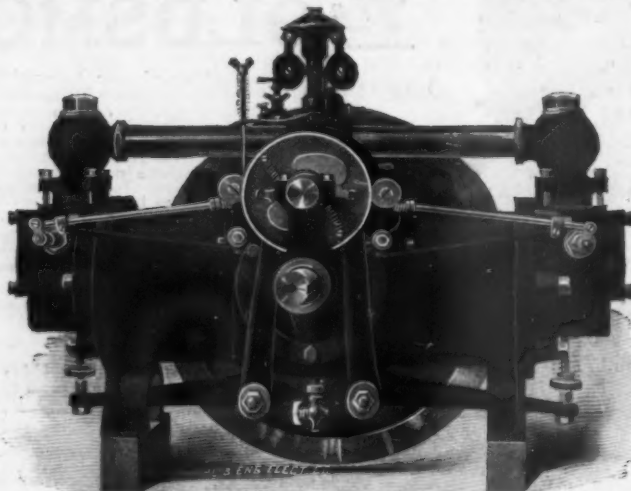
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next few months there will probably be a number of second-hand machines for sale, and while it will be possible to pick up a bargain from some one wealthy enough to buy a new one each season, the novice should beware of a motor bicycle with a past, unless he can get some one familiar with the business to help him make his choice, or extremely accurate information relative to the character of that past.

After Mile Motor Cycle Record.

John Ruel on an Orient motor bicycle fitted with a Sincon motor attempted a record ride down Singac Hill near Montclair, N. J., last Wednesday afternoon. The watches showed 1:19 for the mile, two-thirds of which was down an average 7 per cent grade and the other third over a level. Ruel thinks there was an error in the timing as he has ridden the machine on a track in 1:12. He says he will try again.

Motoring Miscellany.

The French club has designated two Panhards and one Mors for the Gordon Bennett cup race of 1903.

Charles Page, who drove an Oldsmobile in the late reliability run, will, it is said, make a tour of the world, taking his vehicle with him for use wherever it may be convenient.

Philadelphia, despite its reputed lack of speed and vivacity, made a good showing on election day last

week by introducing automobiles in the regular search for delinquent voters.

Two automobiles, one burning coal and the other petroleum, have arrived at Cerro Pasco from Tambo Colorado. They covered 100 kilometers in 36 hours and carried 10 tons of cargo.

The Bat motor bicycle, an English production, is equipped with a belt drive made by the British Chicago Rawhide Mfg. Co., of Birkenhead, England. This concern is a branch of the Chicago Rawhide Mfg. Co., of Chicago.

Ramon Munno, Luis Moreno and Jose Padren, of Manila, Luzon, have been arrested for driving an automobile at excessive speed. Thus does civilization spread itself without any unnecessary delay. The first mentioned native was fined \$50 in gold.

Two hundred automobiles, the largest collection ever seen in London, England, assembled at Hyde Park corner last Saturday, the occasion being the annual meeting of the Automobile Club. A procession was formed and the motor cars started on a seventy-mile run to Oxford in a rain storm. The trip was merely for pleasure.

Two cell storage batteries will register 4.6 volts. This will soon drop to 4.4 volts, which is their normal capacity. They should never be run below 3.8 volts, or the plates are liable to become damaged by buckling. Always test with a voltmeter.

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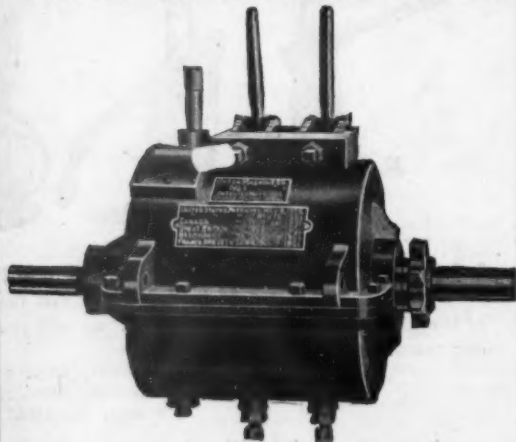
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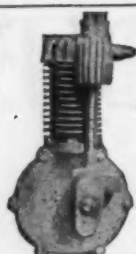
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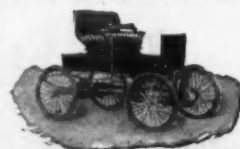
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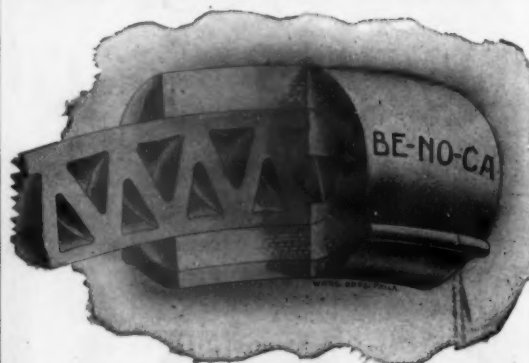
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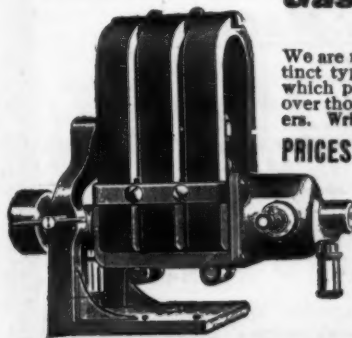
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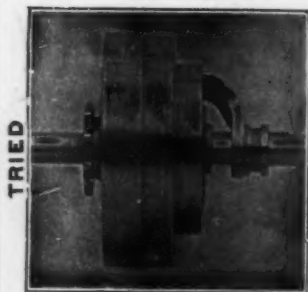
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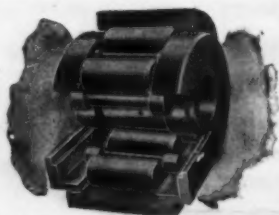
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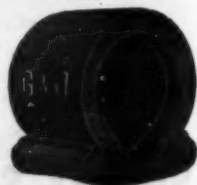
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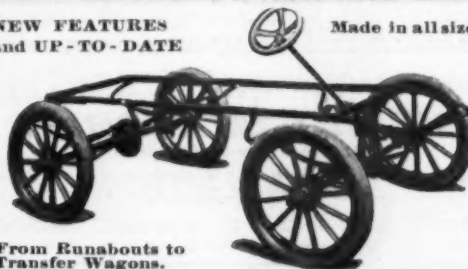
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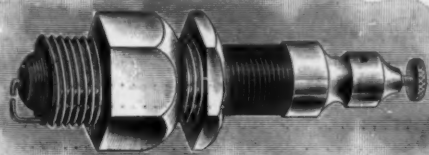
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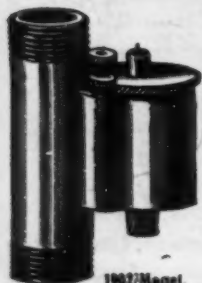


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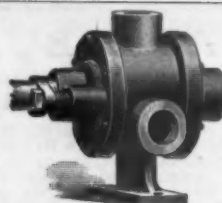


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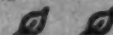
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